

DESIGN OF WATER-QUALITY INFORMATION SYSTEMS WITHIN THE FRAMEWORK OF COLLABORATIVE WATERSHED ORGANIZATIONS *CASE STUDY: BIG THOMPSON WATERSHED FORUM*

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Biographical Sketch of Author

Juliane Brown is a M.S. candidate in Watershed Science in the Department of Earth Resources at Colorado State University. She is also employed by the Colorado District of the Water Resources Division of the U. S. Geological Survey (USGS). Currently, she serves as a liaison between the USGS and the Big Thompson Watershed Forum coordinating sampling activities and information exchange for a cooperative watershed water-quality monitoring project. Juliane is also involved in developing additional cooperative relationships between the USGS and collaborative watershed organizations and in the preliminary planning stages of a statewide water quality monitoring network for Colorado.

Abstract

Collaborative watershed organizations (CWOs) have become increasingly common in response to unresolved water-quality concerns. Limited research on these organizations has been conducted – with most of the focus on organizational development, structure and key characteristics. Understanding how these organizations work to achieve their universal goal of understanding and ultimately protecting and/or enhancing their watersheds will aid other communities considering similar action.

Monitoring is a typical response of CWOs to water-quality concerns. The design of monitoring programs and the collection of data have had and continue to have considerable focus within the research and management arenas. Translating the water-quality data into *usable information* to address the monitoring information objectives has had far less attention. The total process, from design to decision-making, can be termed a Water Quality Information System or WQIS. A WQIS has been defined to include four phases: planning, data generation, information generation, and decision generation (for management).

A descriptive WQIS model is built from existing literature for the foundation of this research. This model is then applied to the Big Thompson Watershed Forum (BTWF), an emerging CWO. The case study evaluation of the BTWF provides an opportunity to examine one CWO currently in the process of designing and building a WQIS. The next component of this research focuses on the data and information generation phases of a WQIS and includes a synthesis of 210 CWO approaches to online water-quality data and information dissemination to provide a perspective on the quality and quantity of WQIS output available to the public. From these activities, a descriptive ‘CWO WQIS model’ is proposed by integrating the principle characteristics of identified CWO systems and the lessons learned from the BTWF case study. The final outcome of this investigation is the creation of a framework and guidelines for the design of a CWO WQIS.